

FIBER OPTIC LASER TRANSMITTER WITH  
REDUCED NEAR END REFLECTIONS

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ABSTRACT OF THE DISCLOSURE

A laser apparatus, which generates laser light to be transmitted through an optical  
10 transmission system includes a laser that emits light that is substantially linearly polarized, a  
housing in which the laser is mounted, and a quarter wave retarder plate. The quarter wave  
retarder plate is disposed so that the emitted laser light passes through the quarter wave  
retarder plate prior to transmission of the emitted laser light through the optical transmission  
system. The quarter wave retarder plate causing the emitted laser light to become circularly  
15 polarized with a predefined handedness. The quarter wave retarder plate is also disposed so  
that light reflected by the optical transmission system back toward the laser passes through  
the quarter wave retarder plate a second time prior to reaching the laser, causing the reflected  
light to become linearly polarized with a linear polarization that is orthogonal to the  
polarization state of the light emitted by the laser. In one embodiment, a linear polarizer is  
20 positioned adjacent a front face of the quarter wave retarder plate. The linear polarizer  
imposes a particular linear polarization orientation on the emitted laser light, and blocks the  
reflected light that passes through the quarter wave retarder plate because that light has a  
linear polarization that is orthogonal to the polarization axis of the linear polarizer.

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